Introduction to Cosmetic Science - Testing

How cosmetic products are tested
Introduction

Objective : To provide key background information about the different types of lab testing of cosmetic products
4 Types of Cosmetic Testing

1. QA/QC tests
2. Stability testing
3. Safety testing
4. Performance testing
QC / QA testing

Ensure product quality
- Incoming raw materials
- Outgoing finished products
QC / QA testing

Mix of sensory & analytical tests
- Chemical evaluations
- Sensory evaluations

Standard tests
- Visual inspection
- Odor
- pH
- Viscosity
What is stability testing?

- Predictive test
- Determine product longevity
  - Aesthetics
  - Functional
  - Microbial quality
  - Package compatibility
Cosmetic Standards

- No specific requirements
- Defined by manufacturer
  - Reasonable
  - Efficient
- Must document what is done
General Guidelines

Type of Packaging

Storage Conditions

Testing Schedule
More Guidelines

- Accelerated tests
- Weight loss
- Freeze/thaw testing
- Package testing
Basics of a stability test

Making Batches

Testing Samples

Making Decisions
Sample storage

- Various temperatures
  - 50°C, 45°C, 35°C
  - RT, 4°C
- Various lighting
  - Sunlight
  - UV light
Actual Sample Storage
Sample Evaluation Schedule

• Standard time checks
  • 2 weeks
  • 4 weeks
  • 8 weeks / Decision
  • 12wk, 26wk, 52wk, beyond
Decisions

- Cosmetics stable for at least 1 year
  - 3 years for some products
- 8wk at 45°C = 1 year stability
- 4 week = fragrance
- 8 week = provisional
- 12wk = higher confidence
- 52wk = verification
  - Requirement for OTC
Safety Testing

Products must be safe

“Safety is freedom from unreasonable risk of significant injury under reasonably foreseeable conditions of use.”

– Cosmetic Ingredient Review (CIR)

Concerns

Eye, skin, toxicology
Safety Testing

External System Tests
- Chemical irritants
- Patch testing
- Eye irritation tests
- Sensitizers
- Photosensitivity
- Acnegenicity
Safety Testing

Internal System tests
- Oral & Percutaneous toxicity tests
- Inhalation testing
- Irritation studies

Systemic effects
- Mutagenicity tests
- Carcinogenic testing
- Teratogenic tests
Performance testing

Must substantiate advertising claims

No specific tests dictated by FDA

“Extraordinary claims need extraordinary proof”
Performance testing

Common claims
  Efficacy claims
  Safety claims
  Exotic material claims
  Comparison claims
Performance testing

Skin Testing

Hair Testing
Cosmetic Science